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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,421	02/28/2002	Joseph Fitzgerald McDonald	67,023-008	3207

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EXAMINER

CYGAN, MICHAEL T

ART UNIT	PAPER NUMBER
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2855

DATE MAILED: 06/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/085,421

Applicant(s)

MCDONALD ET AL.

Examiner

Michael Cygan

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 8-18 is/are rejected.
- 7) ☒ Claim(s) 5-7 and 19-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 27 May 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The corrected or substitute drawings were received on 27 May 2003.

These drawings are acceptable.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 12, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama ("Collection of Exhaust Hydrocarbons", March 1994) in view of Delajoud (US 5,445,035). Akiyama discloses the claimed invention, a method for using the above apparatus comprising sampling exhaust gases, pumping the gases to a canister, measuring the amount of transferred gases with a mass flow controller, heating the canister, pumping the gases to an analyzer, and determining the contents (including long-chain hydrocarbons) of the gas with the analyzer. See entire disclosure, especially abstract and page 116.

Akiyama teaches the claimed invention except for the use of a pressure mass flow controller. Delajoud teaches a pressure mass flow controller (abstract, Figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a pressure mass flow controller as taught by Delajoud in the invention taught by Akiyama to act as the mass flow controller, since Delajoud teaches that the pressure mass flow controller is accurate, low cost, easily cleaned, has an easily altered gas flow range, and is highly stable over time (column 2, lines 31-63).

3. Claims 1-3, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanashiro (US 6,293,161 B1) in view of Akiyama ("Collection of Exhaust Hydrocarbons", March 1994) and in view of

Delajoud (US 5,445,035). Hanashiro discloses an exhaust gas measurement system comprising a probe [209] which collects sampled gas and sends the gas to a sampling container which comprises a stainless steel canister [116] and a polymer bag [104]. A pump [14], flow rate meter [15], and associated pressure sensor [16] are placed in proximity to each other at positions between probe and canister. A temperature sensor [120] corrects measurement by causing the heating elements to maintain an uniform temperature. An exhaust gas analyzer is fluidly connected to the canister. A second pump [41] for creating a vacuum for gas flow to the analyzer is placed between canister and analyzer. A valve assembly [17,50a] selectively connects the canister to the first or second pumps. See entire document, especially Figure 1, columns 7-10, and column 11, lines 9-57.

Hanashiro teaches the claimed apparatus except for the placement of a mass flow meter in the oven and the use of a pressure mass flow controller. Akiyama teaches the placement of the mass flow meter inside the oven. It would have been obvious to one having ordinary skill in the art at the time the invention was made to place the mass flow meter inside the oven as taught by Akiyama in the invention taught by Hanashiro to result in a heated, temperature-controlled mass flow meter, since this would eliminate any errors due to unwanted condensation or pressure fluctuations. Note also that Hanashiro desires heating of the conduits

outside the oven for such a purpose, using extra heaters; see column 8, lines 29-31.

Delajoud teaches a pressure mass flow controller (abstract, Figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a pressure mass flow controller as taught by Delajoud in the invention taught by Hanashiro to act as the mass flow controller, since Delajoud teaches that the pressure mass flow controller is accurate, low cost, easily cleaned, has an easily altered gas flow range, and is highly stable over time (column 2, lines 31-63).

4. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanashiro (US 6,293,161 B1) in view of Akiyama ("Collection of Exhaust Hydrocarbons", March 1994) and in view of Delajoud (US 5,445,035) as applied to claims 1-3, and 9 above, and further in view of CFR 40 (1)(C)(86)(N). The claimed invention is taught as expressed above except for the temperature being set to approximately 191 degrees Celsius and for the use of a flame ionization detector GC (GC-FID). CFR 40 (1)(C)(86)(N) teaches the use of 191 degrees Celsius as a temperature for performing exhaust gas sampling and analysis. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a temperature of approximately 191 degrees Celsius and a GC-FID as taught by CFR 40 (1)(C)(86)(N) in the invention taught by

Hanashiro, since the use of standardized procedures as set forth by CFR 40 (1)(C)(86)(N) would reduce errors and standardize results for comparison.

5. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanashiro (US 6,293,161 B1) in view of Akiyama ("Collection of Exhaust Hydrocarbons", March 1994) and in view of Delajoud (US 5,445,035) as applied to claims 1-3, and 9 above, and further in view of Lewis (US 4,823,591). The claimed invention is taught as expressed above except for the use of an additional pump and valving for evacuation of the sampling chambers. Lewis teaches an additional pump [64] with associated valving fluidly connected to the sampling chambers for exhausting the chambers (see Figure 2). It would have been obvious to use an additional pump [64] with associated valving fluidly connected to the sampling chambers for exhausting the chambers as taught by Lewis in the invention of Hanashiro to perform the canister exhausting function, since this would provide a direct exhaust of the entire flow path without the complicated valving and conduits required by Hanashiro which forces exhausting and analyzing to be done by only a single pump through a complicated pipe and valve network.

6. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama ("Collection of Exhaust Hydrocarbons", March 1994) in view of Delajoud (US 5,445,035) as applied to claim 12 above further in view of CFR 40 (1)(C)(86)(N). The claimed invention is taught as expressed above except for the temperature being set to approximately 191 degrees Celsius. CFR 40 (1)(C)(86)(N) teaches the use of 191 degrees Celsius as a temperature for performing exhaust gas sampling and analysis. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a temperature of approximately 191 degrees Celsius as taught by CFR 40 (1)(C)(86)(N) in the invention taught by Akiyama, since the use of standardized procedures as set forth by CFR 40 (1)(C)(86)(N) would reduce errors and standardize results for comparison.
7. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama ("Collection of Exhaust Hydrocarbons", March 1994) in view of Delajoud (US 5,445,035) as applied to claim 12 above further in view of Lewis (US 4,823,591). The claimed invention is taught by Akiyama except for adjusting the mass flow controller to more accurately measure the amount of exhaust gases in response to the measured temperature and pressure. Lewis teaches using temperature and pressure measurements to correct the mass flow controller

measurements in an exhaust gas sampling and analysis system; see column 7, lines 4-33. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use temperature and pressure measurements to correct the mass flow controller measurements as taught by Lewis in a method as taught by Akiyama to correct mass flow for gas property fluctuations, since temperature and pressure deviations would cause errors in mass flow readings (and thus, the ultimate analysis) if left unchecked.

Allowable Subject Matter

8. Claims 5-7 and 19-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. The following is a statement of reasons for the indication of allowable subject matter: the claims recite the use of a second mass flow controller either interconnected between canister and analyzer or used for measuring the amount of exhaust gas sent to the analyzer which is neither disclosed nor fairly taught in the prior art.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pressure-based mass flow controllers are

disclosed by "Pressure-Based Mass-Flo® Controller for Ion Implant Applications", "Pressure-Based Mass-Flow Control Using Thermopneumatically-Actuated Microvalves", Loan (US 5,868,159), and Grosshart (US 2002/0082783 A1).

Response to Arguments

11. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection. With respect to the applicant's confusion over the cited section of 40 CFR, the cited section is that supplied by applicant in the IDS submitted 28 February 2002; note that the supplied reference is entitled CFR 40...Chapter I...Subchapter C...Part 86...Subpart N.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cygan whose telephone number is 703-305-0846. The examiner can normally be reached on 8:30-6 M-Th, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 703-305-4816. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

A handwritten signature in black ink, appearing to read "Michael Cygan", with a stylized, cursive script.

Michael Cygan
June 2, 2003